IN THE SPECIFICATION:

Page 1, after the title, insert the following topic headings.

BACKGROUND OF THE INVENTION

FIELD OF THE INVENTION

Page 1, between lines 6 and 7, insert the following topic heading.

THE PRIOR ART

Page 2, lines 19 to 30, replace the paragraphs with the following amended paragraphs.

It~~I~~ is further known from JP 2002-257773A (NGK INSULATORS LDT) to provide a filter unit for a gas sensor arranged in a metal tube, which filter unit can be attached to the end of the metal tube in a detachable fashion.

In an article of the University GH Essen by Dr. Ulrich Simon ("Gassensorik - Impedanzspektroskopie an nanoporösen Feststoffen; "Gas sensory analysis – Impedance spectroscopy on nano-porous solids"), exponate of the "FB8 – Inorganic chemistry" at the Hanover Trade Fair 1996, chemical gas sensors are described for measuring gas concentrations in motor-car exhaust gases, using non-porous solids as gas-sensitive materials. A few milligrams of a nano-porous solid, such as zeolite, are applied in a thin layer of only a few hundredth of millimeters onto an electronic chip structure, in a so-called interdigital condenser, and the electric properties are measured.

SUMMARY OF THE INVENTION

Page 3, lines 17 to 27, replace the paragraph with the following amended paragraph.

Especially for the use of the filter device in accordance with the invention on the input side of an analysis unit it is important that the gas constituents to be measured, such as CO, CO_2 and/or O_2, are not impaired to the highest possible extent by the filter material. It has been noticed surprisingly that naturally occurring or chemically purified or adapted zeolites or zeolite-like materials are outstandingly suitable as filter materials. For example, so-called "Eisenberger mass" can be used as a filter material which is principally composed of the following components:

~~SiO2~~SiO_2: 87.7% CaO: 1.7% ~~TiO2~~TiO_2: 0.3%

~~A12O3~~Al_2O_3: 4.8% MgO: 0.7%

~~Na2O~~Na_2O: 3:9% ~~K2O~~K_2O: 0:5%

Page 5, lines 23 to 31, replace the paragraph with the following amended paragraph.

With the help of a selective adsorption of individual gas components (e.g., H_2SO_4) it is possible to remove components from the exhaust gas stream to be measured with the help of zeolites or zeolite-like materials. Cross-sensitivities of water or sulfur, for example, can thus be eliminated. A further measuring principle is obtained in such a way that even the adsorbed quantity of a certain gas component in the filtering column is a

measure for its gas concentration. The composition of the deposit can be determined from respective analyses of the filtrate. The exhaust gas concentration of such gas components can thus be measured by means of ~~a~~ respective detectors with the help of zeolite or zeolite-like material.

Page 7, lines 12 to 22, replace the paragraph with the following amended paragraph.

Depending on the operating state of the combustion engine, especially an internal combustion engine, new toxic substances such as Nitro-PAHs (polycyclic aromatic hydrocarbons) can be formed from the present non-combusted hydrocarbons and nitrogen oxides in the exhaust gas system. Previously used apparatuses for exhaust gas cleaning of internal combustion engines contain noble metals, such as platinum, palladium and rhodium, for catalytic oxidation of CO and HC. The oxidation effect of these apparatuses is sufficient in order to fall below the statutory limit values, but are not sufficiently selective in order to totally eliminate these toxic components. On the contrary, the formation of such substances can even be promoted by the catalytic effect. Further hazardous compounds can originate from fuel additives.

Page 8, line 16 to page 9, line 24, replace the paragraphs with the following amended paragraphs.

The invention is now explained in closer detail by reference to the schematic drawings~~, wherein:~~.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 shows a measuring device in accordance with the invention, preferably a test stand for engines and vehicles for analyzing the exhaust gases of an internal combustion engine, ~~and~~

Fig. 2 shows an embodiment of a filter device of the measuring device according to Fig. 1[~~.~~], and

Fig. 3 shows a variant of a portion of the measuring device of Fig. 1 when the filter device is located above the exhaust gas cooling device.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The measuring device 1 as shown in Fig. 1 is used for analyzing the exhaust gases of an internal combustion engine 2 which is arranged on an engine test stand (not shown in closer detail). The measuring device 1 comprises two gas supply lines 4 and 4' which can be connected with different measuring points in the exhaust gas system 3 of the internal combustion engine 2 and which can be switched to the parallel measuring branches 7, 8 and 9 via valves 5 and 5'. On the input side of the valves 5 and 5', conventional particle filters 10 and 10' are arranged in the exhaust gas supply lines 4 and 4'. The measuring branches 7 and 8 are thermo-statisized to a measuring temperature of 191°C in the schematically enhanced unit 6, with the measuring branch 7 comprising an analysis unit 12, for example, for determining NO and NO_x, and with the measuring

branch 8 comprising an analysis unit 13 for determining the hydrocarbons.

The measuring branch 9 (see area 11 of the measuring device 1) is a cool measuring branch with a cooling device 15 which cools the exhaust gas stream especially for condensation of H_2O to temperatures of between approx. 2°C to 7°C. A filter device 16a is situated upstream of the exhaust gas cooling device 15, which filter device contains a filter material which is selective to gaseous hydrocarbons, as a result of which the subsequent ~~measuring device~~analysis unit 14 and its components 14a and 14b can be kept completely free from deposits caused by polymerization, condensation, crystallization, etc., from gaseous source materials, especially hydrocarbons. The filter device 16a comprises a filter material of the group of zeolites and/or silicates and is provided upstream of ~~a~~ ~~measuring device~~analysis unit 14, e.g., for determining the content of CO, CO_2 and/or O_2.

As is shown in Fig. ~~1a~~1, the filter device 16a can be arranged upstream of an exhaust gas cooling device 15 upstream of an analysis unit 14, so that the transport of condensate originating in the filter device 16a preferably occurs by the gas flow in the direction of the exhaust gas cooling device 15. It is also possible to arrange the filter device 16a above the exhaust gas cooling device 15, so that the transport of the obtained condensate

preferably occurs by gravity in the direction of the exhaust gas cooling device 15. Both effects can be combined effectively by a respective arrangement above and upstream of the cooling device 15. The condensate can then easily be removed by suction with the help of a hose pump, for example, jointly with the condensate originating in the cooling device.

Page 9, line 28 to page 10, line 8, replace the paragraphs with the following amended paragraphs.

As is further shown in Fig. 1, such filters 16c through ~~16e~~16f with zeolite as a filter material can also be arranged for filtering the test stand gases on the output side of the individual measuring branches 7 to 9 for the protection of the operating staff or in a collecting line 17 which leads together the measuring branches 7 to 9 on the output side of the measuring device.

The exhaust gas measuring device 1 can also comprise a device 18 with which the exhaust gas is admixed with a predefined quantity of diluent air prior to the measurement. In order to avoid distortions in the results of the measurement, a filter device 16g with a filter material of the group of zeolites and/or silicates can also be arranged in the supply line 19 for the diluent air or for the intake air of the internal combustion engine. The

filtered intake air can be supplied for calibration purpose, for example, via a separate feed line 20 and the valve 21 into the individual measuring branches 7, 8, 9.

Page 10, after line 13, insert the following new paragraph.

Fig. 3 shows a variant of Fig. 1 wherein the filter device 16a is located above the exhaust gas cooling device 15.